

Microcomputer Technical Information

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QB-78K0FX1 In-Circuit Emulator for 78K0/FC1+, 78K0/FE1+, 78K0/FF1+ Upgrade	Document No.	ZBG-CD-06-0064	1/2
	Date issued	August 3, 2006	
	Issued by	Development Tool Group Multipurpose Microcomputer Systems Division 4th Systems Operations Unit NEC Electronics Corporation	
Related documents QB-78K0FX1 User's Manual: U17534EJ1V0UM00 QB-78K0FX1 In-Circuit Emulator for 78K0/FC1+, 78K0/FE1+, 78K0/FF1+ Usage Restrictions: ZBG-CD-06-0063	Notification classification		Usage restriction
		√	Upgrade
			Document modification
			Other notification

1. Target product and version

Product	Outline	Control Code ^{Note}
QB-78K0FX1	In-circuit emulator for 78K0/FC1+, 78K0/FE1+, 78K0/FF1+	A, B

It is not necessary to upgrade control code C.

2. Upgrade details

Bugs No. 7 described in *QB-78K0FX1 In-Circuit Emulator for 78K0/FC1+, 78K0/FE1+, 78K0/FF1+ Usage Restrictions* (ZBG-CD-06-0063) will be corrected.

After upgrading, the control code will be C. See the document for details.

3. Upgrade start date

Two types of upgrade are available.

Product	Control Code Before Upgrade	Upgrade Method	Control Code After Upgrade
QB-78K0FX1	A	Upgrade by sending the product to NEC Electronics	C
	B	Upgrade by user or upgrade by sending the product to NEC Electronics	

We request customers who have a product of control code B to upgrade the product as indicated in “3.1 Upgrade by user”, because upgrades by sending the product to NEC Electronics may require two weeks or longer.

Note The “control code” is the second digit from the left in the 10-digit serial number.
If the product has been upgraded, the control code can be checked in the About dialog box in the ID78K0-QB.
“X” in version information “IECUBE **** X F/W: V*. **” is the control code.

3.1 Upgrade by user

Downloading through ODS is possible from August 22, 2006.

Download the latest version of the upgrade file (containing firmware, FPGA data, etc.) from the Development Tools Download (ODS) page at the NEC Electronics website, and upgrade the product by referring to *How to Upgrade QB-78K0FX1* (ZUD-CD-06-0147), which is included with the upgrade file.

URL: <http://www.necel.com/micro/ods/eng/>

3.2 Upgrade by sending the product to NEC Electronics

Upgrading by submitting the product will be available from August 22, 2006.

Upgrade by sending the product to NEC Electronics is available. Consult an NEC Electronics sales representative or distributor.

The upgrade described herein will be provided for free for a period of one year from the above date. After the free upgrade period expires, an upgrade will be available for a fee. We therefore recommend that you take advantage of the free upgrade offer during the free upgrade period.

How to Upgrade QB-78K0FX1

1. Overview

This document describes the method for user-implemented upgrading of the QB-78K0FX1.

Target product: QB-78K0FX1 control code^{Note 1} A, B

Product	Control Code Before Upgrade	Upgrade Method	Control Code After Upgrade
QB-78K0FX1	A	Upgrade by sending the product to NEC Electronics	C
	B	Upgrade by user or upgrade by sending the product to NEC Electronics	

The following items are modified by upgrading QB-78K0FX1 from control code B to C.

- Correction of the following bug^{Note 2}:
 - Internal ROM area is overwritten during program execution

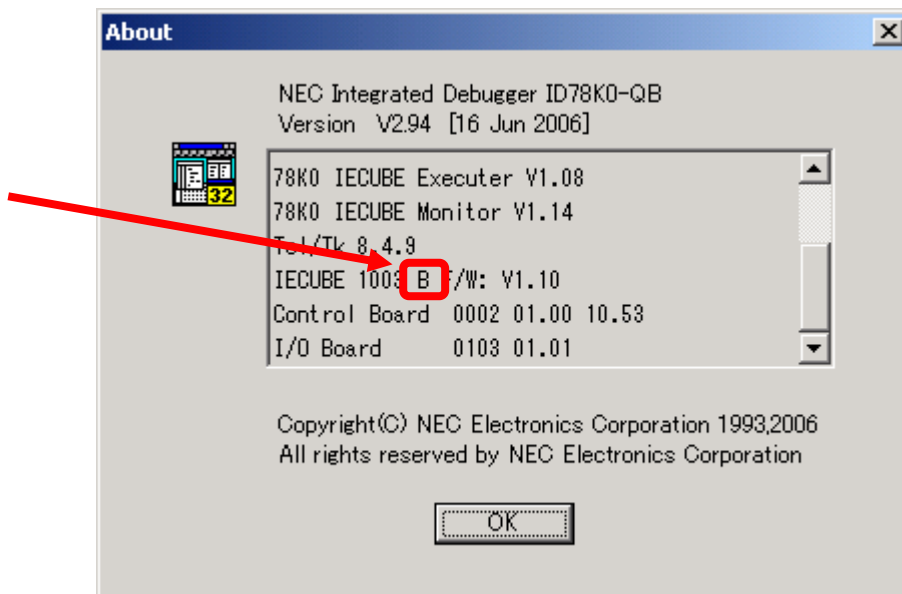
Notes 1. The “control code” is the second digit from the left in the 10-digit serial number.

If the product has been upgraded, the control code can be checked by selecting [About] from the [Help] menu of integrated debugger ID78K0-QB.

“X” in version information “IECUBE **** X F/W: V*. **” is the control code.

Open the About dialog box in any of the following ways.

- Select [About...] under [Help] from the menu bar on the main window.
- Press the [ALT], [H] and [A] keys in that order.



2. Refer to the document *QB-78K0FX1 (Control Code: A, B, C) Operating Precautions* (ZUD-CD-06-0146) for details on the bug.

2. Upgrade Procedure

The following is the flow until completion of upgrade.

(1) Preparation of upgrade file

Check how to download the update file from ODS and the list of downloaded files.

(2) Confirmation of current version before upgrade

Check if your IECUBE is the subject of upgrade.

(3) Updating FPGA data

Update FPGA data for IECUBE.

(4) Updating firmware data

Update firmware for IECUBE.

(5) Confirmation of version after upgrade

Confirm that IECUBE has been upgraded normally.

Perform upgrading in the above procedure.

2.1 Preparation of upgrade file

- (1) Download the upgrade file “qb-78k0fx1_c.exe” from the Development Tools Download (ODS) page at the NEC Electronics website. (URL: <http://www.necel.com/micro/ods/eng/>)

Category: Each Development Tool → IECUBE Software

Product Name: QB-78K0FX1

- (2) The downloaded file is the self-extracting file “qb-78k0fx1_c.exe”.

Execute *qb-78k0fx1_c.exe* first to decompress the files in the same folder.

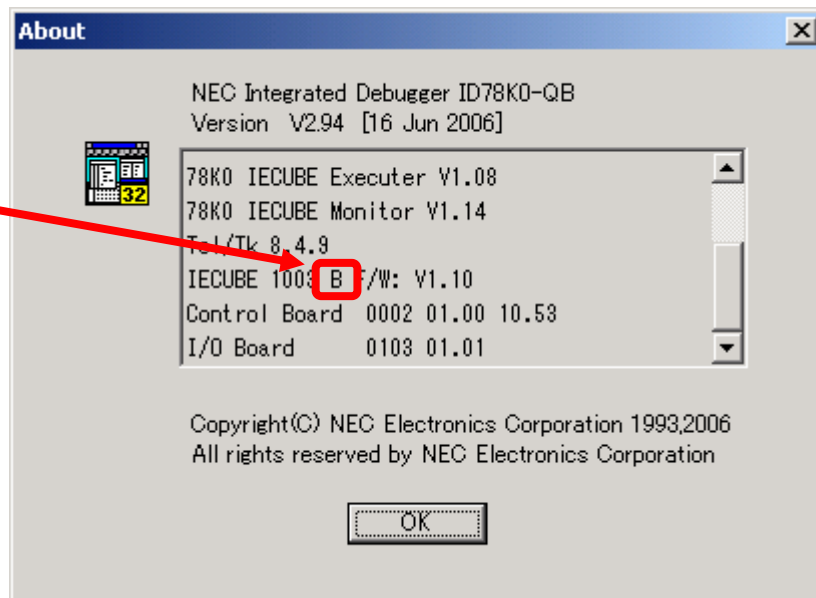
Note that the decompressed files differ depending on the control board version, which is checked in **2.2 Confirmation of current version before upgrade**.

The following files will be decompressed.

— ZUD-CD-06-0147.pdf:	<i>How to Upgrade QB-78K0FX1 (Japanese)</i>
— ZUD-CD-06-0147-E.pdf:	<i>How to Upgrade QB-78K0FX1 (English): This document</i>
— ZUD-CD-06-0146.pdf:	<i>QB-78K0FX1 Operating Precautions (Japanese)</i>
— ZUD-CD-06-0146-E.pdf:	<i>QB-78K0FX1 Operating Precautions (English)</i>
— <CT2>:	For control board version 2
— IEQBUTL.exe:	IECUBE utility
— IEQBUTL.ini:	IEQBUTL setting file
— IEQB78K0_V120.hex:	Firmware data
— QB-78K0-CPUEVA-0000_1064-XC18V04x4.xsvf:	FPGA data
— <CT3>:	For control board version 3
— IEQBUTL.exe:	IECUBE utility
— IEQBUTL.ini:	IEQBUTL setting file
— IEQB78K0_V120.hex:	Firmware data
— QB-78K0-CPUEVA-0000_1064-XCF16Px1.xsvf:	FPGA data

2.2 Confirmation of current version before upgrade

- (1) Connect the QB-78K0FX1 to the host machine using a USB cable.
- (2) Turn on the power to the QB-78K0FX1 and start the ID78K0-QB.
- (3) Check that the control code of the QB-78K0FX1 is B in the About dialog box.
Open the About dialog box in any of the following ways.
 - Select [About...] under [Help] from the menu bar on the main window.
 - Press the [ALT], [H] and [A] keys in that order.



Upgrading with this method is not necessary if the version is C (shaded portion in example below). In such a case, proceed to step (5) and then terminate the ID78K0-QB.

If the control board version is 0002

```

:
IECUBE 1003 C F/W: V1.20
Control Board 0002 01.00 10.64
I/O Board 0103 01.01
  
```

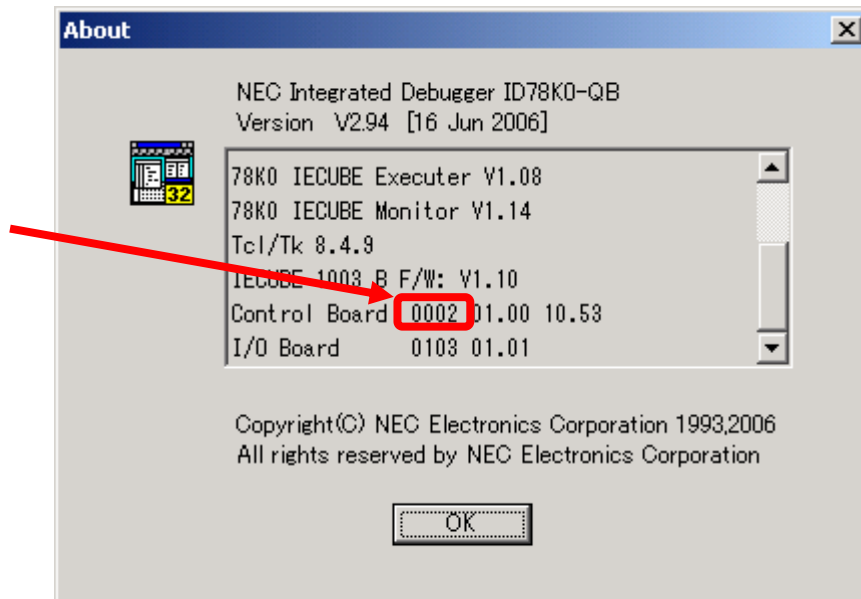
If the control board version is 0003

```

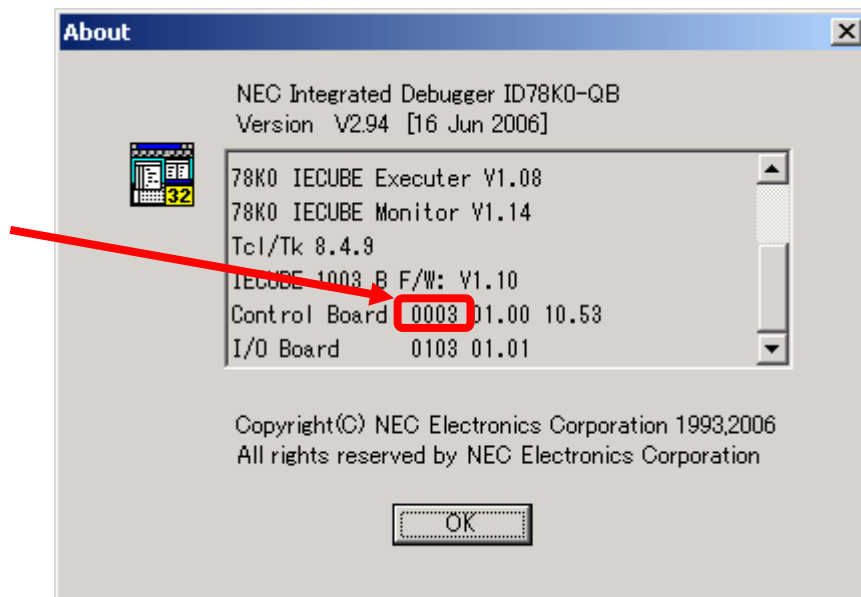
:
IECUBE 1003 C F/W: V1.20
Control Board 0003 01.00 10.64
I/O Board 0103 01.01
  
```

- (4) Check the control board version in the About dialog box. At this time, be sure to write down the version displayed.

If the control board version is 0002



If the control board version is 0003

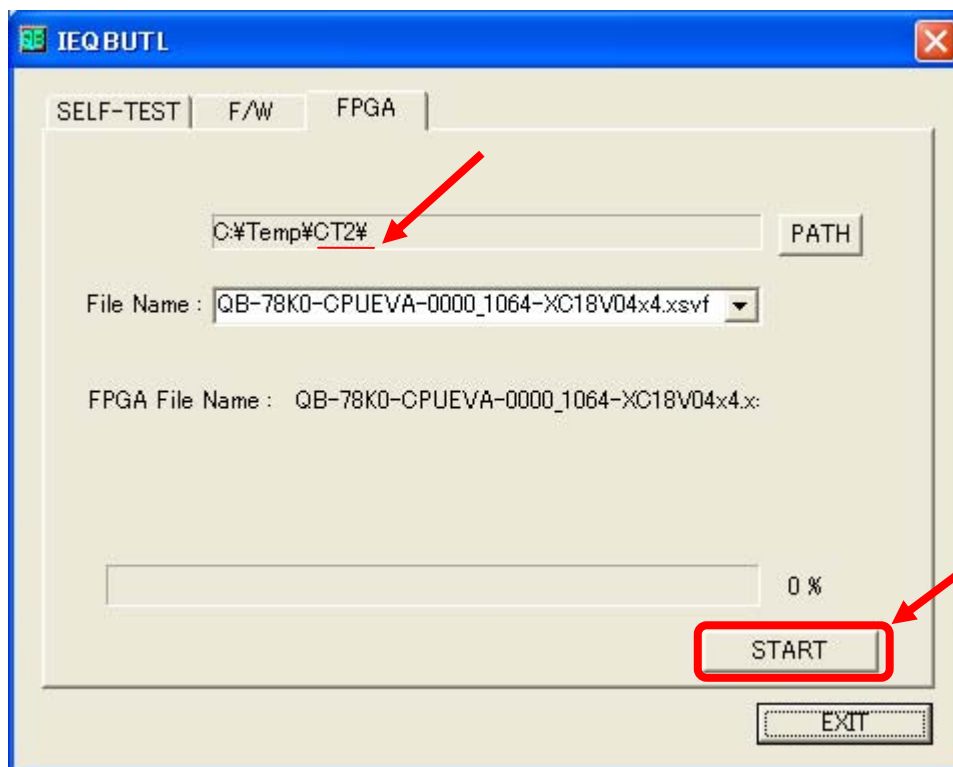


- (5) Click the OK button to close the About dialog box.
- (6) Terminate the ID78K0-QB.

2.3 Updating FPGA data

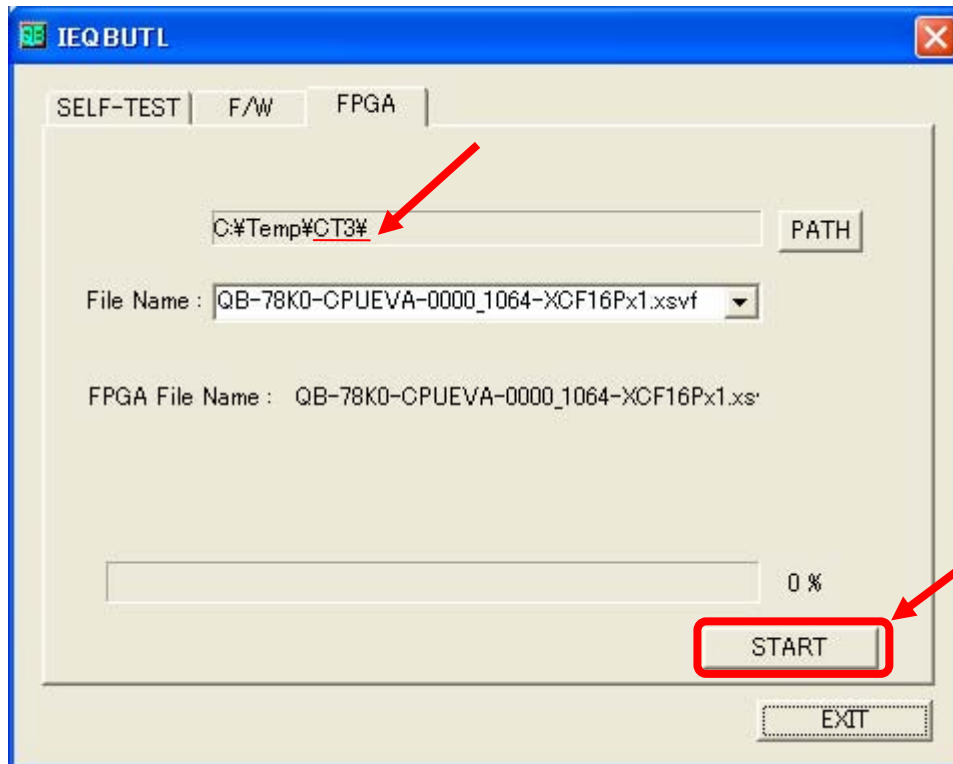
- (1) Turn on the power to the QB-78K0FX1.
- (2) Select the folder in **2.2 Confirmation of current version before upgrade**, in accordance with the control board version.
 - If the control board version is 0002: Open the <CT2> folder.
 - If the control board version is 0003: Open the <CT3> folder.
- (3) Start the IECUBE utility *IEQBUTL.exe*.
- (4) Select the FPGA tab in the IEQBUTL window, confirm the File Name setting, and then click the START button. Since initial processing takes some time, the progress bar seems to be stopped at 1% after the START button is clicked. It takes about five to seven minutes until the processing completes.

If the control board version is 0002



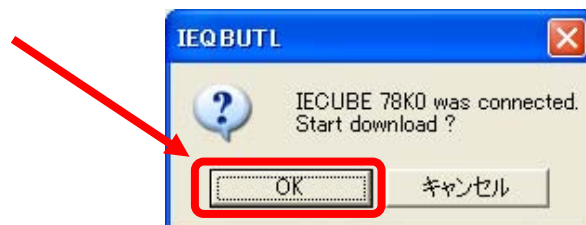
"QB-78K0-CPUEVA-0000_1064-XC18V04x4.xsvf" is selected in the File Name drop-down list.

If the control board version is 0003



"QB-78K0-CPUEVA-0000_1064-XCF16Px1.xsvf" is selected in the File Name drop-down list.

- (5) The following message will be displayed when downloading is completed. Click the OK button.



Caution Do not turn off the power to the QB-78K0FX1 nor disconnect the USB interface cable during downloading; otherwise, it will not be possible to restart the QB-78K0FX1.

The time required for downloading varies depending on the host interface as shown below.

Host Interface	Time Required for Downloading
USB 2.0	Approximately 5 minutes
USB 1.0	Approximately 7 minutes

If an abnormal state occurs, such as no response getting sent from IEQBUTL for more than 15 minutes, forcibly terminate IEQBUTL, turn off the power to the QB-78K0FX1, then start from **2.2 Confirmation of current version before upgrade**. If it does not resolve the problem, refer to **3. When Upgrading Failed**.

- (6) The following message will be displayed when downloading is completed. Click the OK button.



- (7) Click the EXIT button.

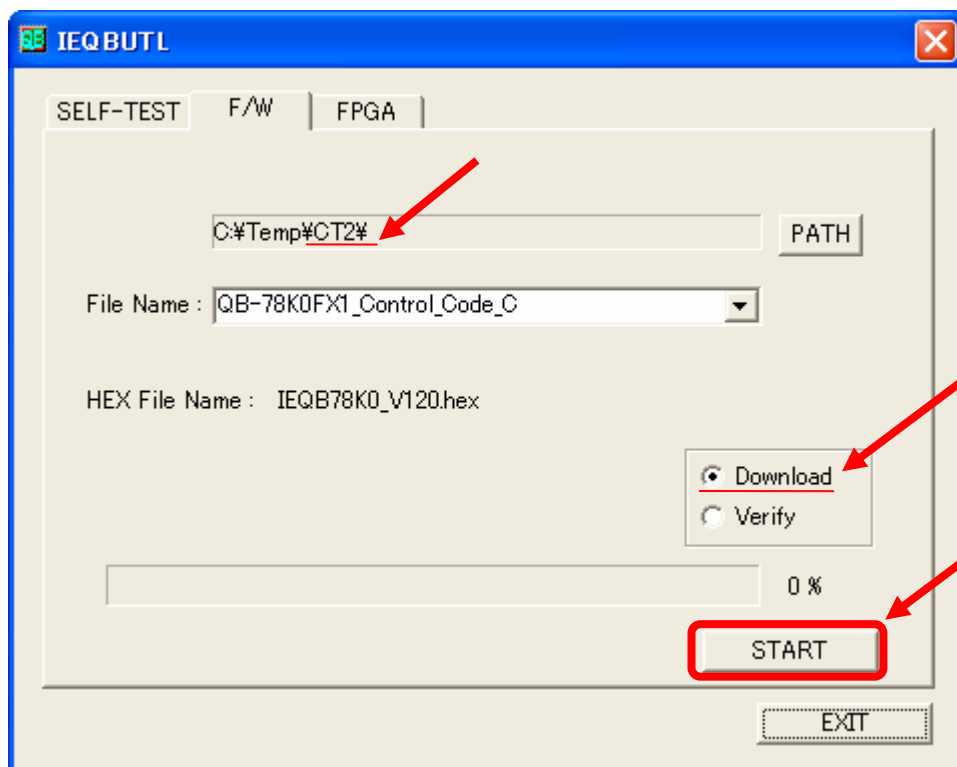
- (8) Turn off the power to the QB-78K0FX1.

Caution Be sure to turn off the power to the QB-78K0FX1 after the FPGA data has been updated. After turning on the power again, be sure to perform the procedure in 2.4 *Updating firmware data*. If the ID78K0-QB is started after FPGA data is updated without first powering the QB-78K0FX1 off and on again, the ID78K0-QB will not operate normally.

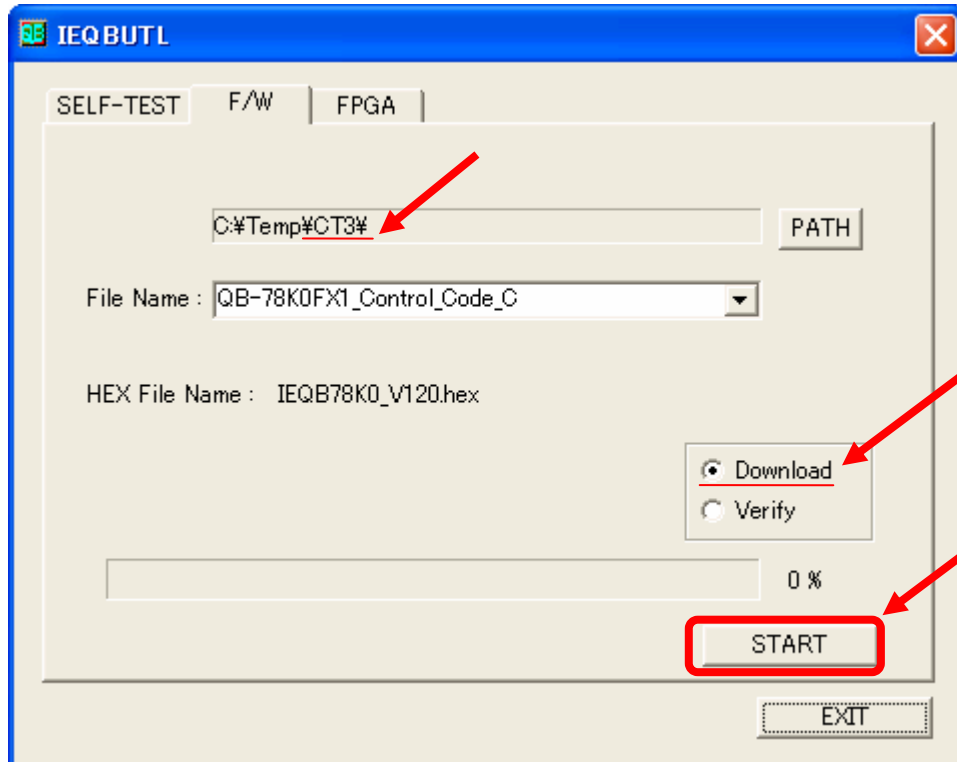
2.4 Updating firmware data

- (1) Turn on the power to the QB-78K0FX1.
- (2) Select the folder in **2.2 Confirmation of current version before upgrade**, in accordance with the control board version.
 - If the control board version is 0002: Open the <CT2> folder.
 - If the control board version is 0003: Open the <CT3> folder.
- (3) Start the IECUBE utility *IEQBUTL.exe*.
- (4) Select the F/W tab, confirm the following settings, and then click the START button.
 - “QB-78K0FX1_Control_Code_C” is selected in the File Name drop-down list.
 - The Download radio button is selected.

If the control board version is 0002

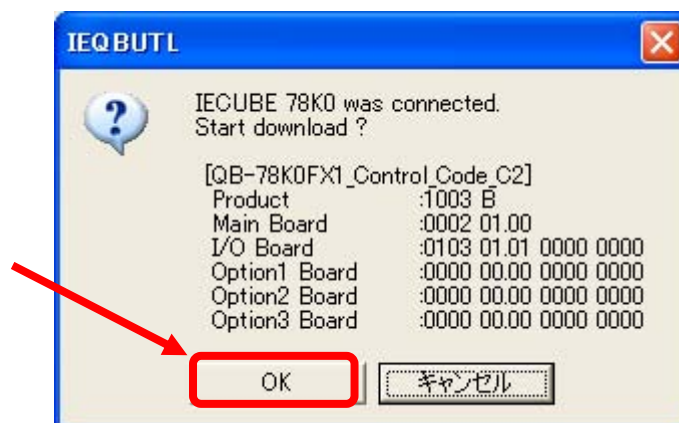


If the control board version is 0003

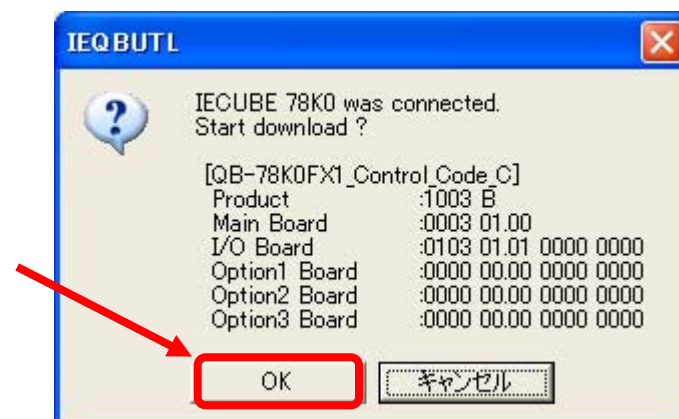


(5) The following message will be displayed. Click the OK button.

If the control board version is 0002



If the control board version is 0003

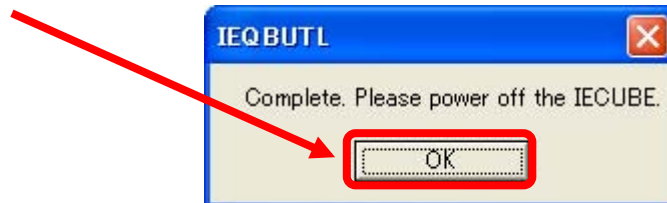


Caution Do not turn off the power to the QB-78K0FX1 nor disconnect the USB interface cable during downloading; otherwise, it will not be possible to restart the QB-78K0FX1. The time required for downloading varies depending on the host interface, as shown below.

Host Interface	Time Required for Downloading
USB 2.0	Approximately 6 seconds
USB 1.0	Approximately 25 seconds

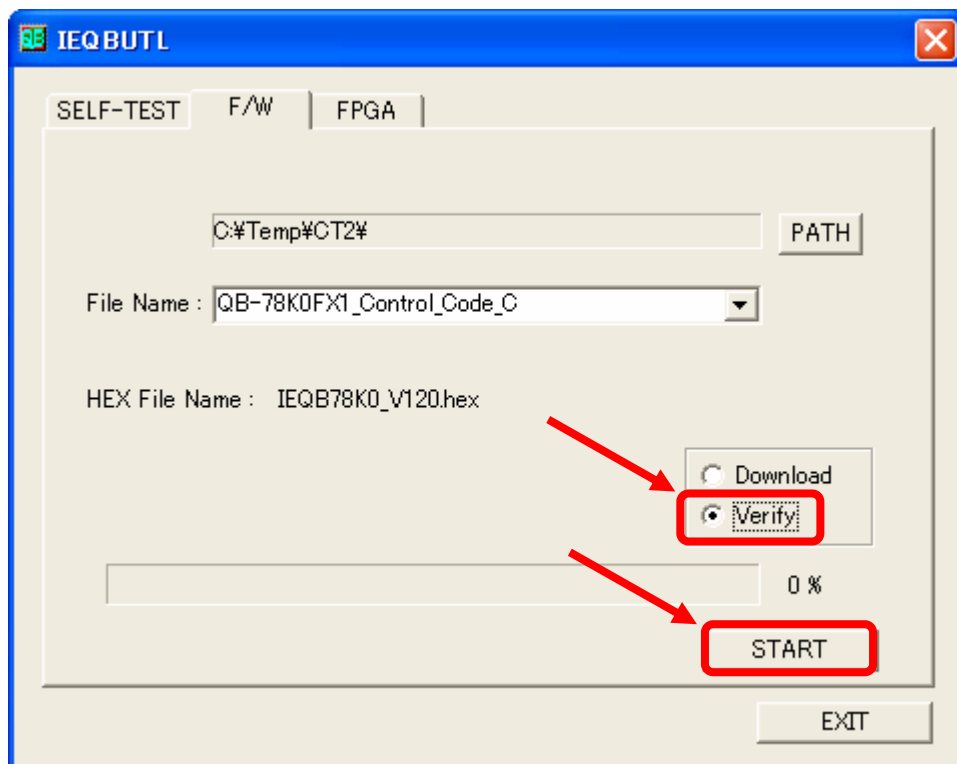
If an abnormal state occurs, such as no response getting sent from IEQBUTL for more than one minute, forcibly terminate IEQBUTL, turn off the power to the QB-78K0FX1, then start from step (1) again. If it does not resolve the problem, refer to 3. *When Upgrading Failed.*

- (6) The following message will be displayed when downloading is complete. Click the OK button.

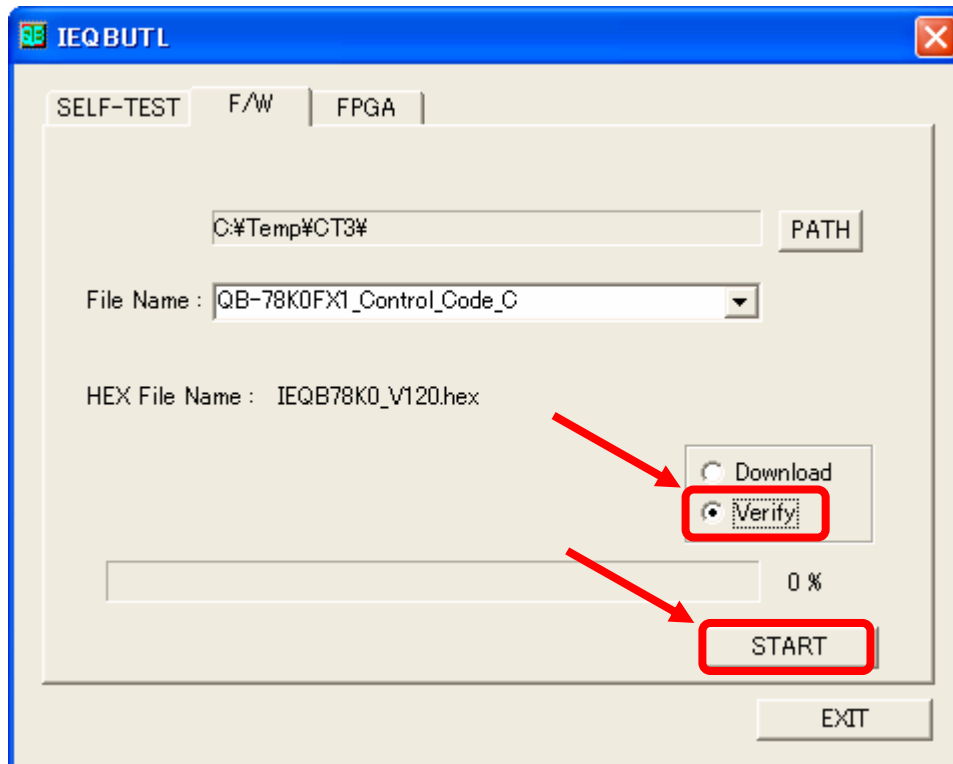


- (7) Turn off the power to the QB-78K0FX1.
- (8) Wait for several seconds and then turn on the power to the QB-78K0FX1.
- (9) Select the Verify radio button and then click the START button.

If the control board version is 0002

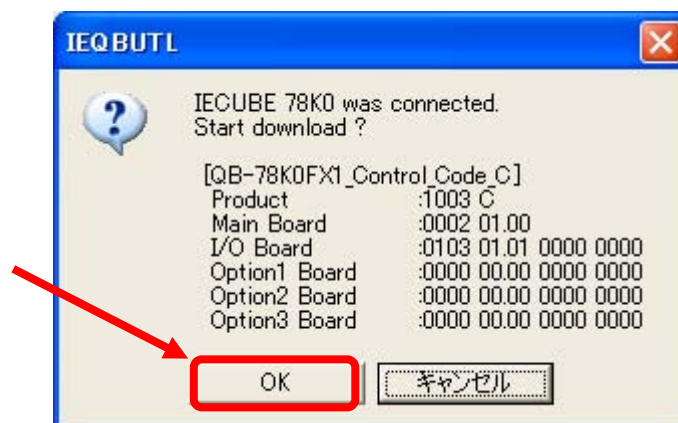


If the control board version is 0003

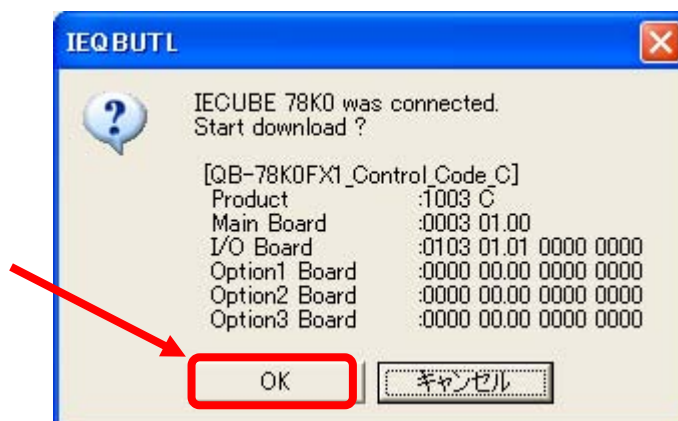


(10) The following message will be displayed. Click the OK button.

If the control board version is 0002



If the control board version is 0003



(11) The following message will be displayed when verifying is completed. Click the OK button.



(12) Click the EXIT button.

(13) Turn off the power to the QB-78K0FX1.

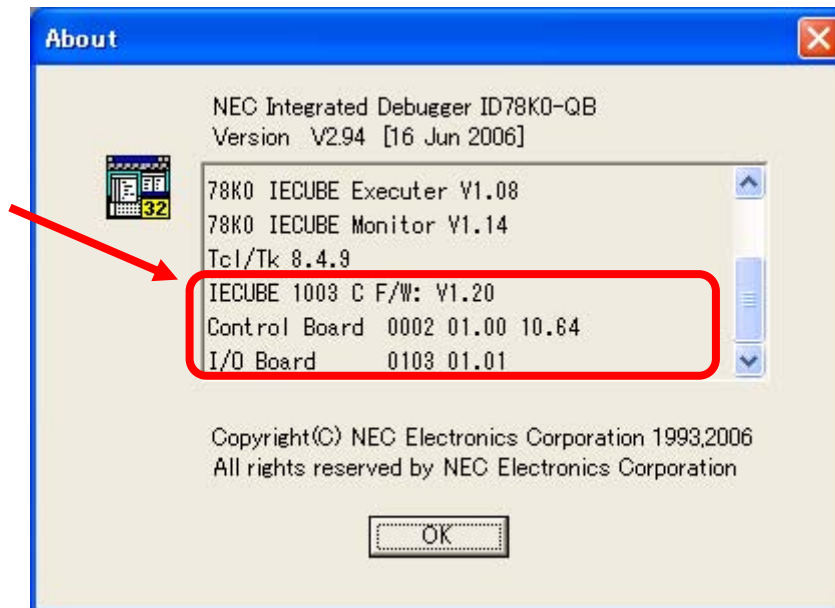
Caution Be sure to turn off the power to the QB-78K0FX1 after the firmware data has been updated. Turn on the power again, and then start the ID78K0-QB. If the ID78K0-QB is started after the firmware data is updated without first powering the QB-78K0FX1 off and on again, the ID78K0-QB will not operate normally.

2.5 Confirmation of version after upgrade

- (1) Start the ID78K0-QB.
- (2) Confirm the version information in the About dialog box.

Open the About dialog box in any of the following ways.

- Select [About...] under [Help] from the menu bar on the main window.
- Press the [ALT], [H] and [A] keys in that order.



Check that the version is as shown below (shaded portions).

If the control board version is 0002

```

:
IECUBE 1003 C F/W: V1.20
Control Board  0002 01.00 10.64
I/O Board      0103 01.01
  
```

If the control board version is 0003

```

:
IECUBE 1003 C F/W: V1.20
Control Board  0003 01.00 10.64
I/O Board      0103 01.01
  
```

- (3) Click the OK button to close the About dialog box.
- (4) Terminate the ID78K0-QB.

Upgrade is thus completed.

3. When Upgrading Failed

Consult an NEC Electronics sales representative or distributor if upgrading failed, such as in the example described below, using the procedure described in this document.

- Updating described in **2.3 Updating FPGA data** or **2.4 Updating firmware data** cannot be performed normally.

Example 1: When downloading FPGA data as described in **2.3**, downloading stops before all the data has been downloaded. No matter how many times the procedure is repeated from step (1), the result is the same.

Example 2: When downloading firmware data as described in **2.4**, downloading stops before all the data has been downloaded. No matter how many times the procedure is repeated from step (1), the result is the same.

The following message may be displayed during processing described in **2.3**. This message is displayed if the specified folder (CT2 or CT3) does not match the control board version checked in **2.2 Confirmation of current version before upgrade**. In such a case, return to **2.2** and perform the steps again.

Message that appears when a wrong folder name was specified



- The procedure in **2.5 Confirmation of version after upgrade** cannot be performed normally.
 - Example 1: The ID78K0-QB does not start.
 - Example 2: The version information shown in the About dialog box differs from that shown in the illustrations.